



OECD Economics Department Working Papers No. 1053

Reforming Agriculture  
and Promoting Japan's  
Integration in the World  
Economy

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<https://dx.doi.org/10.1787/5k4695710rf4-en>

**Unclassified**

**ECO/WKP(2013)45**

Organisation de Coopération et de Développement Économiques  
Organisation for Economic Co-operation and Development

**27-May-2013**

**English - Or. English**

**ECONOMICS DEPARTMENT**

**ECO/WKP(2013)45**  
**Unclassified**

**REFORMING AGRICULTURE AND PROMOTING JAPAN'S INTEGRATION  
IN THE WORLD ECONOMY**

**ECONOMICS DEPARTMENT WORKING PAPERS No. 1053**

**By Randall S. Jones and Shingo Kimura**

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**JT03340199**

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**English - Or. English**

## ABSTRACT/RÉSUMÉ

### Reforming agriculture and promoting Japan's integration in the world economy

The problems of Japanese agriculture – in particular low productivity and the prevalence of part-time farmers and small plots have been evident for the past 50 years. The high level and distortionary nature of agriculture support imposes burdens on consumers and taxpayers, undermines the dynamism of the farming sector and complicates Japan's participation in comprehensive bilateral and regional trade agreements that would boost its growth potential. The priority is to shift to measures decoupled from production and gradually reduce border measures. Continued failure to implement necessary reforms threatens the future of the agricultural sector. In the absence of fundamental reform, the Japanese agriculture will continue to wither, trapped in a cycle of low productivity, low earnings and dependence on subsidies and import protection. The time for reform is now. A more open and market-oriented sector would also facilitate participation in comprehensive regional and bilateral trade agreements.

This Working Paper relates to the 2013 *OECD Economic Survey of Japan* ([www.oecd.org/eco/surveys/japan](http://www.oecd.org/eco/surveys/japan))

JEL classification: Q15, Q17, Q18.

Keywords: Japan; Abenomics; agricultural reform; farm size; Producer Support Estimate; agricultural subsidies; farm consolidation; rice; decoupling; production adjustment programme; multifunctionality; Trans-Pacific Partnership; Economic Partnership Agreements; food security; food self-sufficiency.

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### Réformer l'agriculture et promouvoir l'intégration du Japon dans l'économie mondiale

Les problèmes de l'agriculture japonaise – en particulier la faiblesse de la productivité, la forte proportion d'agriculteurs exerçant cette activité à temps partiel et le nombre élevé de petites exploitations – sont bien connus depuis une cinquantaine d'années. Les aides considérables dont bénéficie l'agriculture entraînent des distorsions, et pèsent ainsi lourdement sur le consommateur et sur le contribuable ; cela nuit au dynamisme du secteur agricole et empêche le Japon de s'engager dans des accords commerciaux globaux, de portée bilatérale ou régionale, qui renforceraient son potentiel de croissance. Il faut en priorité prendre des mesures découplées de la production, et réduire progressivement les obstacles aux importations. L'incapacité persistante à mettre en œuvre les réformes nécessaires menace l'avenir du secteur. Si le pays ne procède pas à une restructuration en profondeur de son agriculture, celle-ci poursuivra son déclin, prise au piège dans un cercle vicieux : productivité médiocre, revenus faibles et forte dépendance aux subventions et aux mesures de protection à l'encontre des importations. L'heure de la réforme a sonné. Un secteur plus ouvert et davantage axé sur le marché faciliterait en outre la participation du Japon à des accords commerciaux d'envergure, tant régionaux que bilatéraux.

Ce Document de travail a trait à *l'Étude économique de l'OCDE du Japon, 2013* ([www.oecd.org/eco/etudes/japon](http://www.oecd.org/eco/etudes/japon)).

Classification JEL : Q15, Q17, Q18.

Mots clés : Japon ; réforme agricole ; taille des exploitations ; estimation du soutien aux producteurs ; subventions agricoles ; remembrement des exploitations ; riz ; découplage ; programme d'ajustement de la production ; multifonctionnalité ; Partenariat transpacifique ; sécurité alimentaire ; autosuffisance alimentaire.

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## REFORMING AGRICULTURE AND PROMOTING JAPAN'S INTEGRATION IN THE WORLD ECONOMY

By Randall S. Jones and Shingo Kimura<sup>1</sup>

Japan's agricultural policy has aimed at increasing its level of self-sufficiency in order to ensure a secure food supply, sustaining farm household income at a level comparable to non-farm households, boosting productivity and achieving the "multifunctionality aspects of agriculture", such as environmental protection. Border restrictions and domestic supply management policies make Japan's level of agricultural support, as measured by the Producer Support Estimate (PSE), the third highest in the OECD area at 51% in 2009-11, more than twice the OECD average (Table 1). Moreover, the decline in Japan's PSE since 1986-88 was less than that for the OECD as a whole.<sup>2</sup> Agricultural policies boosted the prices received by farmers to almost two times the world price in 2009-11, based on the Nominal Protection Coefficient. Consequently, consumer spending on agricultural goods was 1.8 times higher than what it would have been in the absence of government policies. In addition to the burden on consumers and taxpayers, concerns about agricultural issues complicate Japan's participation in comprehensive free trade agreements, thus limiting the scope for its integration in the world economy.

Agricultural reform has become a top priority in Japan in recent years. The creation of the "Headquarters to Promote the Revival of the Food, Agriculture, Forestry and Fisheries Industries" in 2010, a council that consisted of all members of the Cabinet, was part of an effort to promote high-level economic partnerships with key countries. In 2011, the Headquarters announced a *Basic Policy and Action Plan* that aimed at bolstering the competitiveness of farmers over the following five years to prepare for a new era of bilateral and regional trade agreements. The need for reconstruction in Tohoku following the 2011 disaster reinforces the need for a new agricultural model, which should be extended nationwide. This paper begins by discussing the challenges facing Japanese agriculture before discussing recent policy initiatives, followed by a proposed agenda for reform, with recommendations shown in Box 2.

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1. Randall S. Jones is head of the Japan/Korea Desk in the Economics Department of the OECD and Shingo Kimura is an economist in the Trade and Agriculture Directorate. This paper is based on material from the *OECD Economic Survey of Japan* published in April 2013 under the authority of the Economic and Development Review Committee (EDRC). The author would like to thank Ken Ash, Andrew Dean, Robert Ford, Vincent Koen and Satoshi Urasawa for valuable comments on earlier drafts. Special thanks go to Lutécia Daniel for technical assistance, to Nadine Dufour and Pascal Halim for technical preparation, and to Keisuke Matsubara for statistical support.
  2. The decline in the level of Japan's PSE support is due to a combination of a downward trend in production levels over time as well as a reduction in the level of price support, which has been falling due to: *i)* domestic deregulation for rice; and *ii)* tariff reductions in the Uruguay Round Agreements Act, particularly for livestock products.

**Table 1. The level of agricultural support in Japan is one of the highest in the OECD**

	1986-88 <sup>1</sup>	2009-11
Producer Support Estimate (PSE) <sup>2</sup>		
Japan	63%	51%
OECD	38%	20%
Producer Nominal Assistance Coefficient (NAC) <sup>3</sup>		
Japan	2.78	2.06
OECD	1.59	1.26
Producer Nominal Protection Coefficient (NPC) <sup>4</sup>		
Japan	2.65	1.89
OECD	1.49	1.11
Consumer Support Estimate (CSE) <sup>5</sup>		
Japan	-62%	-43%
OECD	-30%	-8%

1. The OECD total for 1986-88 includes all OECD countries except Chile, Israel and Slovenia, for which data are not available.
2. The Producer Support Estimate is the annual monetary value of gross transfers from consumers and taxpayers arising from policies that support agriculture, regardless of their nature, as a per cent of the gross value of farm receipts.
3. The NAC is the ratio between producer's actual gross farm receipts and what they would have been on the world market.
4. The NPC is the ratio between prices received by farmers and those on the world market.
5. The CSE is the share of consumers' expenditure on agricultural commodities that arises as a result of the changes in prices caused by agricultural policy. A negative number indicates that consumers are net providers of support to producers.

Source: OECD PSE/CSE Database 2012.

### *Challenges facing Japanese agriculture*

While the relative importance of agriculture has fallen in most OECD economies, the decline in Japan has been particularly sharp. During the past half century, its share of GDP dropped from 9% to 1%, its share of the labour force shrank from 28% to less than 3% and the cultivated land area has fallen by a quarter. Small and fragmented plots of land are farmed by an ageing work force. The share of full-time farm households fell from 34% to 23% over the same period, while the share of part-time farming households, who earn less than half of their income from agriculture, rose from 32% to 62% (MAFF, 2010a). The key challenges facing the agricultural sector include:

- Low productivity in land-intensive agriculture, stemming largely from the small average size of farms.
- Heavy reliance on chemical fertiliser and pesticides, creating environmental problems.
- High levels of commodity-specific support that distort production decisions and hinder farm level adjustment.
- Restrictive border measures that isolate farmers from international competition, impose heavy burdens on consumers and taxpayers and limit Japan's participation in comprehensive regional and bilateral trade agreements.

#### *The small average size of farms keeps productivity low*

The seeds of the current agricultural structure based on small farms were sown in the post-war "land to the tiller" reform, which transferred land from large landlords to small farmer-owned operations. The reform was legislated in the 1952 *Agricultural Land Act*,<sup>3</sup> which limited land holdings to three hectares

3. Article 1 of the law stated that "Ownership of farmland by the farmer himself is the most appropriate form of ownership". The Article was amended in 2009 to say that the law promotes the acquisition of land rights for cultivators who use farmland effectively and in harmony with their local community.

until 1970 (Yoshikawa, 2010). In most OECD countries, the mechanisation of agriculture and competition sharply increased average farm size. In France, for example, the average rose from 17 hectares in 1970 to 55 in 2010. As a result, farms cultivating more than 25 hectares of land accounted for 64% of all farms, 93% of cultivated area and 87% of workers in 2010 (Agreste-Primeur, 2011). In Japan, in contrast, mechanisation encouraged full-time farmers to shift to part-time farming, while working in other sectors. Average farm size has risen only slightly during the past 50 years to a national average of two hectares (Table 2), remaining very small compared with the European Union (14 hectares), the United States (170 hectares) and Australia (2 970 hectares) (MAFF, 2012a).

**Table 2. The average farm size remains small**

In hectares or head<sup>1</sup>

	1960	1965	1975	1985	1995	2005	2010
By region							
Nationwide	0.9	0.9	1.0	1.1	1.5	1.8	2.0
Hokkaido	3.5	4.1	6.8	9.3	14.0	18.7	21.5
Other than Hokkaido	0.8	0.8	0.8	0.8	1.2	1.3	1.4
By agriculture product							
Rice	0.6	0.6	0.6	0.6	0.9	1.0	1.1
Wheat		0.2	0.2	0.6	1.4	2.1	3.7
Potato		0.1	0.0	0.1	0.7	0.4	0.7
Soybean		0.1	0.0	0.1	0.3	0.5	0.8
Animal husbandry <sup>2</sup>							
Dairy	2.0	3.4	11.2	25.6	44.0	59.7	67.8
Beef cattle	1.2	1.3	3.9	8.7	17.5	30.7	38.9
Pigs	2.4	5.7	34.4	129.0	545.2	1 095.0	1 436.7

1. Farm size is the average operational size of each commodity enterprise in a farm household. Rice farming includes only commercial farm households since 1995.

2. By number of head.

Source: Ministry of Agriculture, Forestry and Fisheries (2012a).

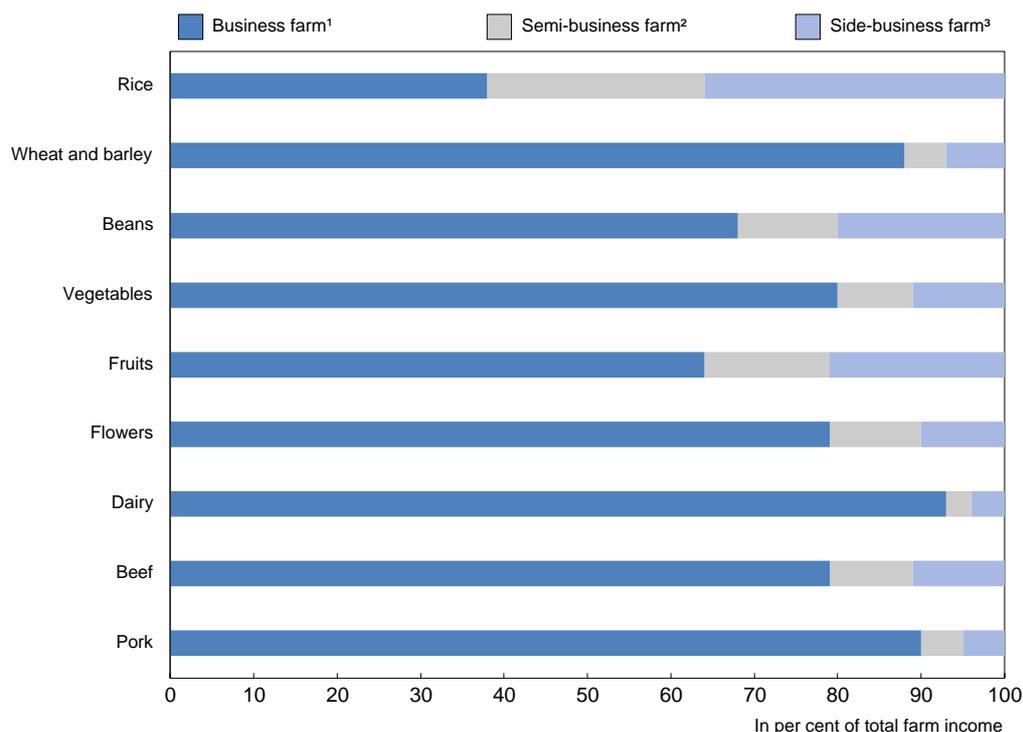
The number of business farms – households that earn more than one-half of their income from farming and farm more than 60 days a year – has fallen by more than half during the past 20 years. By 2010, only a third of rice was grown by “business farms” (Figure 1). Small farms are not viable as business entities, but remain in operation due to agricultural policies, which drive up the price of rice, and labour-saving technology, which enables small farmers to engage in non-farm employment on a full-time basis. Indeed, labour inputs per 0.1 hectare of land for ploughing, planting, weeding, harvesting and threshing fell from 174 hours in 1960 to 25 hours in 2010 (MAFF, 2011a). Among part-time farmers, 79% had permanent non-farm employment in 2005, while the remainder were temporary employees or self-employed (MAFF, 2005).

The small average farm size limits economies of scale: total production costs per unit of output for rice farms that cultivate less than 0.5 hectare are more than double those with three to five hectares. Another study found that ten hectares or more – an area farmed by only 0.7% of Japanese rice farmers – is the optimal size for full-time agriculture (Godo, 2006). The link between small farm size and low productivity has prompted the government to make farm consolidation a policy objective. For example, the 2005 *Basic Plan on Food, Agriculture and Rural Areas* set out an ambitious vision of expanding family farms producing crops to an average size of 15 hectares.

A number of factors hinder farm consolidation, keeping farm size and productivity low. *First*, regulations on acquiring farmland remain significant. The 1952 Act provides guidelines stating that the acquisition of farmland should be limited to those who actually cultivate the land for at least 150 days a year, although local agricultural committees can make exceptions as long those acquiring the land agree to

engage fully in agriculture. In addition, land transactions have to be approved by local agricultural committees. Moreover, a firm is not allowed to purchase farmland unless it qualifies as an Agricultural Production Corporation (APC).<sup>4</sup> Non-APC companies have been allowed to rent (but not own) agricultural land since 2009. However, land rented by non-APC firms in 2011 amounted to only about 0.01% of Japan's cultivated land.

**Figure 1. Agricultural production by type of farm household in 2010**



1. Business farm households earn more than half of household income from farming and engage in farming more than 60 days a year. There were 360 thousand business farms in 2010, accounting for 22% of commercial farms in Japan.
2. Sub-business farms engage in farming more than 60 days per year, but earn less than half of household income from farming. There were 389 thousand semi-business farms in 2010, accounting for 24% of commercial farms in Japan.
3. Side-business farms engage in farming for less than 60 days per year. There were 883 thousand side-business farms in 2010, accounting for 54% of commercial farms in Japan.

Source: Ministry of Agriculture, Forestry and Fisheries (2012a).

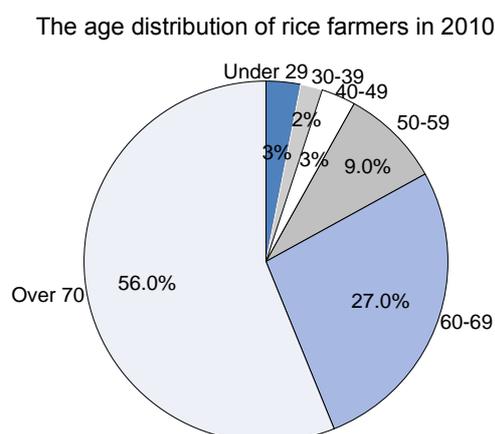
*Second*, the possibility of converting farmland into other uses encourages some farmers to hold onto their land rather than sell it to farmers seeking more land. Moreover, they are reluctant to rent land to other farmers, fearing that the renters may demand a share of the profit if the land is sold (Yoshikawa, 2010). Farmers whose land is converted to other uses can realise large capital gains. Indeed, the purchase price of paddy land for non-agricultural use in 2011 was more than 11 times higher than its price for farming use outside of urban planning zones. Although the agricultural land-use plan, which is under the responsibility of prefectural governors, is aimed at keeping land in agriculture, a quarter of farmland in 1960 has since been shifted to non-agricultural uses. Recommendations on zoning changes and land conversion are made by Local Agricultural Committees (elected by farmers) and local governments, which tend to favour the

4. APCs are firms that derive more than half of their sales from agriculture and related business, and have at least one executive engaged in those areas for more than 150 days a year, making them essentially incorporated family farms.

conversion of farmland to higher valued-added activities.<sup>5</sup> *Third*, the low holding tax on farmland outside of urban zones encourages farmers to wait for changes in zoning that would allow them to realize large capital gains. *Fourth*, the policy of providing income support payments to all rice farmers – regardless of farm size – encourages small operators to continue production. Moreover, the production adjustment programme for rice, which was introduced in 1969 to reduce output, allocates quotas throughout the country, including to both efficient and inefficient farmers, thus limiting the scope for farm consolidation (see below).

Demographic factors, though, will tend to promote farm consolidation by reducing the number of farmers through attrition. By 2010, the average age of farmers was 66 and 56% of rice farmers were over 70, while another 36% were between 50 and 70 (Figure 2). Only 8% were under age 50 (MAFF, 2010a). More than half of farm households do not have a family worker under the age of 65, suggesting that farm operations may eventually be transferred outside the family. The 2010 *Basic Plan* projects a one-third fall in the number of commercial farm households from nearly 1.7 million to 1.1 million by 2020 and a one-quarter drop in the number of workers primarily engaged in family farming from 1.9 million to 1.4 million.

**Figure 2. Japan's farm work force is elderly**



Source: Ministry of Agriculture, Forestry and Fisheries (2010a).

### *Environmental issues related to farming*

The prevalence of small farms also has negative environmental implications. Part-time farmers with small plots substitute purchased inputs, notably chemical fertiliser and pesticides, for labour and land. The nitrogen surplus per hectare of agricultural land in Japan in 2007-09 was one of the highest among OECD countries, and around twice the OECD average (OECD, 2012b). Among farms with less than 0.5 hectare, only 32% have reduced chemical fertiliser use and 39% pesticide use, compared to around 70% for farms larger than 15 hectares (OECD, 2009). In 2010, fertiliser use per 0.1 hectare was 35% less in large farms (more than ten hectares) than in small farms (less than 0.5 hectare), while pesticide use was 29% less (MAFF, 2011a).

5. Land conversion is decided on a case-by-case basis by the prefectural government (for changes concerning less than four hectares) and by the Ministry of Agriculture, Forestry and Fisheries (above four hectares).

*A high level of commodity-specific support that distorts production decisions*

Agricultural policy is aimed in part at supporting farm household income at a level comparable to that in other sectors. Japan has more than achieved this objective: farm household income, on a per capita basis, exceeded that of non-farm households by 21% in 2010 (Table 3). Of course, only a small portion of this income derives from farming, as non-farm income is the primary source of income for farm households. Providing a high level of support to achieve the income parity objective that has already been met is both costly and unnecessary. To the extent that farm household income problems do exist in some areas or for some types of farms, they should be addressed more efficiently through tax and social spending programmes.

**Table 3. Farm household income exceeds that of non-farm households**Income per household member in thousands of yen in current prices<sup>1</sup>

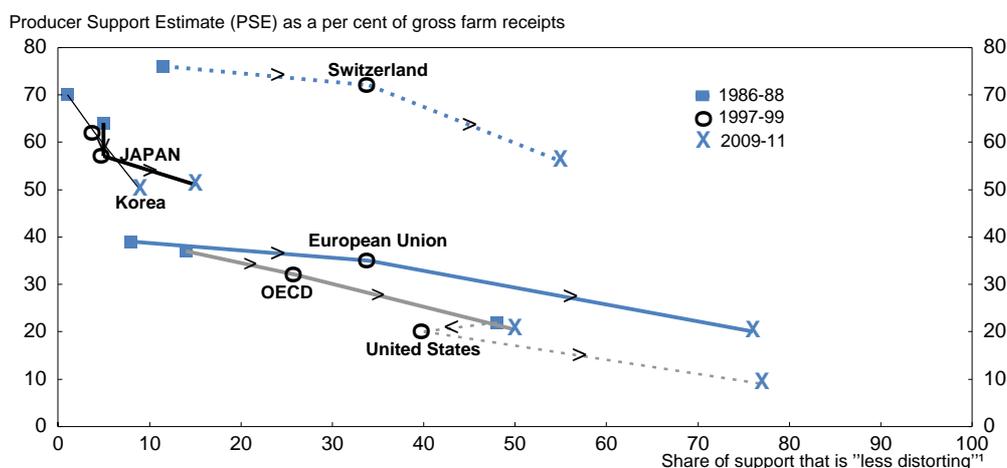
	1960	1970	1980	1990	1995	2000	2005	2010
Non-farm households	112	348	1 096	1 692	1 913	1 946	1 823	1 839
Farm households <sup>2</sup>	77	326	1 271	1 967	2 118	2 080	2 230	2 230
Farm relative to non-farm households	69%	94%	116%	116%	111%	107%	130%	121%

1. A non-farm household is a worker's household with two or more members. The data exclude agricultural, forestry and fishery households (except for 1960).
2. Only commercial farm households included prior to 2004. For 2005 and 2010, farm household income is defined as business income earned by household members involved in farming operations for more than 60 days per year. Income per household member in 2005 and 2010 is calculated as the income per household member involved in farming operations.

Source: Ministry of Agriculture, Forestry and Fisheries (2012a), and Ministry of Internal Affairs and Communications (2012).

Not only is the support level high but it is concentrated in market price support (MPS) measures, which are the most distortive and least effective means of increasing farm income (OECD, 2009). Japan's MPS is maintained via a combination of tariffs and quotas to limit imports, administered prices, and production adjustment programmes (see below). The share of "less distortive payments" (*i.e.* excluding MPS, as well as payments based on output and on non-constrained variable input use) was only 15% of the assistance provided to Japanese farmers in 2009-11, well below the OECD average of 50% (Figure 3). While Japan has reduced its overall level of support, as measured by the PSE, from very high levels, the improvement in its composition remains small compared to other OECD countries.

In the production adjustment programme, the government allocates output targets to each prefecture and further down to each individual farmer in order to keep prices above market equilibrium levels and support farm income. The programme allows rice production to be distributed widely in Japan, including in less favoured areas, by sharing the amount of rice diversion over different areas (OECD, 2009). Efficiency and cost considerations are not factors in this system. The domestic supply controls work in tandem with border measures to maintain higher domestic prices. In 2010, about a third of paddy land was kept out of rice production. The government provides direct payments to compensate farmers for the revenue lost due to growing less profitable crops, such as wheat, barley and soybeans. However, 39% of the land taken out of rice production was left idle. Nevertheless, the payment for not growing rice accounted for almost a quarter of the budgetary transfer component in the PSE in 2009-11. About 85% of rice farmers participate in the production adjustment programme, which is required to receive the income support payment from the government (Hattori, 2011). Other production quotas managed by producer organisations or co-operatives for other products, notably milk and vegetables, have similar negative effects for competition, efficiency and consumer costs.

**Figure 3. The share of less distortive agricultural support is low in Japan**

1. Excludes MPS, as well as payments based on output and non-constrained variable input use. The horizontal axis thus shows the share of less distortive support.

Source: OECD (2012a).

In addition to the lower productivity and high budget costs, the production quotas for individual farmers constrain their decisions on how much and what to produce. The production adjustment programmes thus mute market signals and reduce the dynamism of agriculture by stifling farmers' incentives to increase output. This effect is reinforced by Japan's reliance on single-commodity transfers (SCT), which also shift production away from the optimal product mix. During 2009-11, 88% of support in Japan was tied to a specific commodity, thus narrowing farmers' choice of what to produce. In contrast, the United States and the European Union have significantly reduced the share of SCTs in total support to 34% and 23%, respectively. In addition to their large share in Japan, SCTs are focused on the least competitive commodities, notably rice.

#### *The high level of border measures complicates Japan's integration in the world economy*

Border measures keep domestic agricultural prices above world levels and contribute to food self-sufficiency, but at a very high cost to consumers and with negative effects on production decisions and environmental performance. Import barriers are highest for rice and dairy products, which have relatively high self-sufficiency ratios (see below). In FY 2010, the simple average tariff on agricultural goods was 14.7%, well above the 5.8% average for all goods. Under the Uruguay Round, Japan is committed to rice imports equivalent to 7.2% of domestic consumption in the 1986-88 base period (equivalent to 8.5% of current domestic consumption). Rice imports beyond the quota amount would be subject to a tariff of 341 yen per kilogramme, which amounted to a 780% tariff in 2012. Very high tariffs are also applied to red beans (403%), barley (256%) and wheat (252%).

The high level of border protection for its agricultural sector has been a major issue in Japan's participation in trade agreements. Indeed, Japan was one of the few countries in the world at the beginning of the 21<sup>st</sup> century without any bilateral or regional trade agreements, although it now has agreements with 12 countries, plus ASEAN (Table 4). Agriculture has been a major topic in agreements, as in the case of Mexico, which included negotiations on pork, beef, chicken and oranges. In the end, Japan increased import quotas for these products, rather than removing tariffs, as is required in FTAs that are consistent with WTO rules. Consequently, Mexican agricultural products exempted from import tariffs as a percentage of Mexico's total agricultural exports to Japan was less than 50% (in value terms) (Kawai and Urata, 2010).

The 2010 *Basic Policy on Comprehensive Economic Partnerships* acknowledged that trade agreements would have a relatively large impact on agriculture. Indeed, a recent study estimated that the fall in output for primary industries in Japan, including agriculture, resulting from the proposed Free Trade Area of the Asia Pacific (FTAAP), which includes the 21 APEC members, would be the largest among participating countries (Kawasaki, 2010). Nevertheless, the FTAAP would boost Japan's real GDP by 1.1%. Japan's existing EPAs accounted for 19.1% of its trade in 2011. Even if the agreements with Australia, Canada, Colombia and Mongolia were implemented, the coverage would rise to only 22.5% for exports and 26.4% for imports. In contrast, Korea's Free Trade Agreements account for 45% of its exports and 35% of its imports.

**Table 4. Japan's Economic Partnership Agreements**

Country	Status	Share of exports in 2011 in per cent		Share of imports in 2011 in per cent	
		Total	Agriculture	Total	Agriculture
Singapore	Took effect in 2002	3.3	1.3	1.0	0.7
Mexico	Took effect in 2005	1.2	0.1	0.5	0.9
Malaysia	Took effect in 2006	2.3	1.5	3.6	0.9
Chile	Took effect in 2007	0.3	0.1	1.1	6.3
Thailand	Took effect in 2007	4.6	4.9	2.9	5.0
Indonesia	Took effect in 2008	2.2	2.1	4.0	5.4
Brunei	Took effect in 2008	0.0	0.0	0.7	0.0
Philippines	Took effect in 2008	1.4	0.9	1.0	1.8
ASEAN <sup>1</sup>	Took effect in 2008	14.9	13.4	14.6	15.0
Switzerland	Took effect in 2009	1.1	0.9	0.9	0.6
Vietnam	Took effect in 2009	1.2	2.5	1.4	1.1
India	Took effect in 2011	1.3	1.0	0.8	1.4
Peru	Took effect in 2012	0.1	0.1	0.3	1.3
<b>Sub-total</b>		<b>19.1</b>	<b>15.5</b>	<b>18.2</b>	<b>25.6</b>
Australia	Negotiations are under way	2.2	0.6	6.6	15.3
Colombia	Negotiations are under way	0.2	0.0	0.1	0.4
Mongolia	Negotiations are under way	0.0	0.0	0.0	0.0
Canada	Negotiations are under way	1.1	0.4	1.5	5.5
<b>Total</b>		<b>22.5</b>	<b>16.5</b>	<b>26.4</b>	<b>46.8</b>

1. Includes Cambodia, Laos and Myanmar, in addition to the other ASEAN countries shown individually.

Source: OECD International Merchandise Trade Statistics Database.

#### *A falling rate of food self-sufficiency*

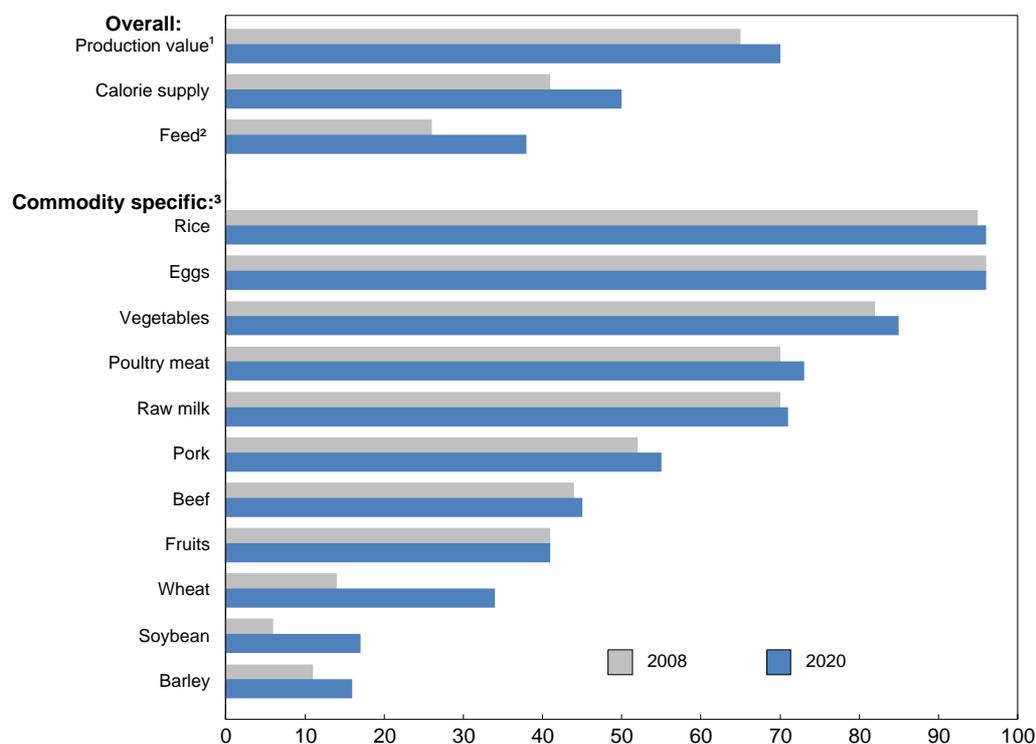
Despite border measures, Japan's food self-sufficiency ratio in terms of calories has fallen by half, from 79% in 1960 to 39% in 2010 (Table 5). Japan is the world's largest net importer of agricultural products, importing 16 times more than it exports in value terms. In terms of the total value of food produced, the self-sufficiency ratio was 66% in 2011. The 2010 *Basic Plan* raised the self-sufficiency target from 45% in 2015 to 50% by 2020 in calorie terms and set a self-sufficiency objective of 70% in terms of the production value (Figure 4). In particular, self-sufficiency in rice is targeted to rise slightly from 95% to 96% by 2020. Achieving these targets requires increased agricultural production.

**Table 5. Self-sufficiency in food production**In per cent<sup>1</sup>

	1960	1970	1980	1990	1995	2000	2005	2010
<b>Total</b>	<b>79</b>	<b>60</b>	<b>53</b>	<b>47</b>	<b>43</b>	<b>40</b>	<b>40</b>	<b>39</b>
Rice	102	106	100	100	103	95	95	97
Wheat	39	9	10	15	7	11	14	9
Soybeans	28	4	4	5	2	5	5	6
Vegetables	100	99	97	91	85	82	79	81
Fruits	100	84	81	63	49	44	41	38
Dairy products	89	89	82	78	72	68	68	67
Beef	96	90	72	51	39	34	43	42
Pork	96	98	87	74	62	57	50	53
Feed	n.a.	38	28	26	26	26	25	25

1. The total self-sufficiency rate is expressed on a calorie basis, while that for each commodity is expressed on a weight basis.

Source: Ministry of Agriculture, Forestry and Fisheries (2012b).

**Figure 4. Japan's targets for food self-sufficiency**

1. Assuming that prices in 2020 remain unchanged at 2008 levels.

2. In terms of total digestible nutrients.

3. In terms of weight.

Source: Ministry of Agriculture, Forestry and Fisheries (2012b).

### ***Recent policy measures and an evaluation of their effectiveness***

#### ***Income support payments***

In April 2007, the government introduced income support for five major crops (wheat, barley, soybeans, sugar beets and starch potato but excluding rice) for which Japan's self-sufficiency rate is low.

This new system of support, which was based on historical levels of farm size, income loss and output, replaced the previous commodity-specific, output-based payments. Payments under the new system were limited to core farmers, defined as those with at least four hectares (10 hectares in Hokkaido), as part of its objective of increasing the average size of farms. However, following the backlash in rural areas in the 2007 election, the focus on large farms was weakened in 2008 by allowing each municipality to approve exemptions.

The 2007 system of direct payments to core farmers of the five crops was extended to all farmers with sales records in 2011, while payments were added for two additional products (buck wheat and rape seed). The programme aims to increase self-sufficiency by allowing farmers growing these seven crops to earn as much as rice farmers. In 2010, the government also introduced a new farm income support programme for rice that bridges the gap between the producer price and production cost. The payment is available to all rice farms with sales records, regardless of size, thus increasing the number of rice farmers receiving income support by 17 times, from 72 thousand to 1.2 million between 2007 and 2011.<sup>6</sup> The government's rationale for supporting all rice farmers is to promote the viability of small farmers, some of whom may become core farmers in the future.

However, sustaining small farms slows farm consolidation and limits opportunities to become core farmers. Making the new payment available to all farms, including part-time and small-scale producers, encourages them to continue farming rather than transfer their land to full-time farmers. The new programme is thus holding back farm consolidation and productivity. Moreover, the new payment involves a higher level of market price support and is commodity specific, leaving less scope for farmers to decide what to produce.

#### *Policies to promote land consolidation*

Despite the decision to abandon the income support targeting large-scale farmers, farm consolidation remains a government objective. To promote farmland consolidation, the government launched a system in 2009 to co-ordinate farmland use in each municipality through discussions by interested parties. Optimal solutions are to be achieved by landowners and potential purchasers and renters, thereby reducing transaction costs, especially for those renting land from many small-farm owners.

The government continues to set ambitious targets for farm consolidation. The 2010 *Basic Plan* set an objective of increasing the average size of commercial farms to 2.5 hectares by 2020 and business farms to 7.7 hectares. This was followed by the 2011 *Basic Policy and Action Plan*, which calls for accelerating farm consolidation so that the majority of farms operate 20-30 hectares of land in flat areas and 10-20 hectares in hilly and mountainous areas. In 2012, the government launched a set of new policies to this end. *First*, each municipality is to prepare an agricultural master plan, based on community discussions, which will identify core farmers and an ideal land-use pattern for the future. *Second*, the farmers who expand farm size in accordance with the master plan receive additional payments of 20 thousand yen (about \$210) per additional 0.1 hectare. *Third*, a new financial payment was launched to support those who lease land to core farmers. The payments, which can be as high as 700 thousand yen per household, are based on the leased area. However, these policies are unlikely to be fully effective as long as the other factors that impede consolidation remain in place. The priority should be to remove these obstacles rather than to introduce new subsidies.

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6. The payment systems for rice and other crops were combined in 2011 to reduce the administrative burden on farmers.

### *An overall evaluation of agricultural policies*

Agricultural policies can be judged on their success in achieving their major objectives (Table 6):

- *Sustaining farm income*: the production adjustment programmes, the provision of income support to all farmers and import restrictions have raised farm prices and income, thereby sustaining farm household income at a level comparable to non-farm households. However, this has imposed a high cost on consumers and taxpayers.
- *Boosting productivity*: productivity has been adversely affected, as the production adjustment programmes divide rice production between efficient and inefficient farms and hinder farm consolidation.
- *Multifunctionality objectives*: taking more than a third of the paddy land out of rice production and leaving much of it idle has negative implications for multifunctionality objectives related to the environment.
- *Food security*: food self-sufficiency is only one aspect of food security, which also depends on the existence of a competitive domestic agricultural sector and stable trading relationships. Moreover, food adjustment programmes reduce domestic production, thus working against self-sufficiency.

**Table 6. Success of agricultural policies in meeting objectives<sup>1</sup>**

	Farm income	Productivity	Environmental multi-functionality <sup>2</sup>	Food security
<b>Current policy framework</b>				
Production adjustment programme for rice	+	--	--	--
Income support payments for all farms	+	--	0	+
Uncertainty about farmland use plan and regulation	0	--	0	--
Food self-sufficiency rate targets	--	--	0	+
<b>Proposed policy framework</b>				
Transitory income support payments to large farms	++	++	+	+
Decoupled payments based on environmental services	+	0	++	+
Comprehensive land use plan and transparent regulation	0	+	+	+
Multiple criteria to assess food security	0	+	0	++

1. A + indicates that the policy helps achieve the objective, while a – indicates it is a hindrance. A 0 means that it has no impact on meeting the objective.

2. Such as water-buffering, bio-diversity, landscape and other environmental services.

Source: OECD Secretariat.

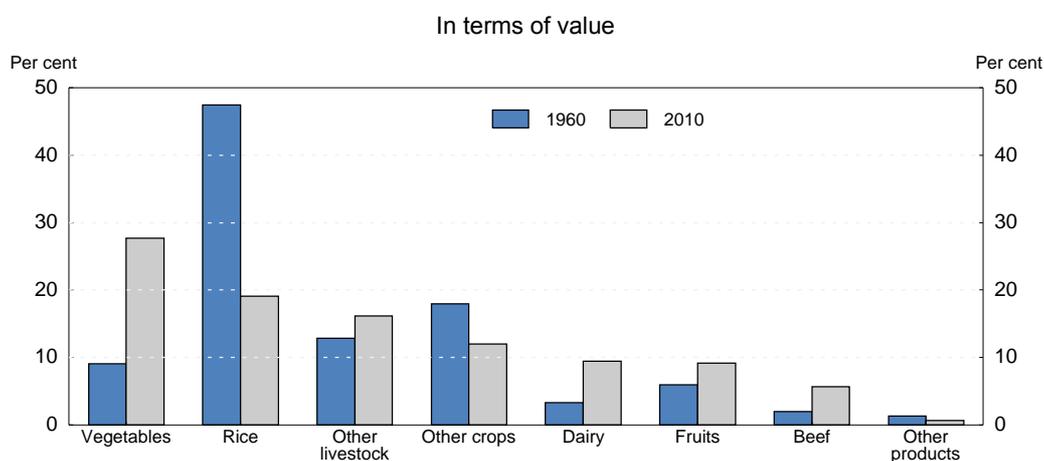
### *An agenda for agricultural reform in Japan*

The 2010 *Basic Policy on Comprehensive Economic Partnerships* stressed that Japan must implement “bold policies that will realise the full potential of the agricultural sector” in order to boost Japan’s growth prospects. Moreover, given the average age of farmers, reform is urgent. Policies should aim at making agriculture a growth industry by shifting to higher-valued products. The development of the vegetable industry illustrates the potential for a competitive and market-oriented agricultural sector in Japan if it were to move away from import-substitution style policies that isolate domestic producers. Indeed, the increase in the relative importance of vegetable production, which is now larger than rice in terms of the share of agricultural output (Figure 5), was achieved in the absence of high import protection. The majority of applied tariff rates for vegetables are around 3%, well below the average tariff of almost 15% for the

agricultural sector and the almost 800% tariff for rice. In contrast to rice, 80% of vegetables are produced by business farm households (Figure 1). Vegetables are a labour-intensive sector that does not require a large land area to be competitive, in contrast to rice.

Reform should focus on providing greater opportunities to farmers to operate in a more open and competitive environment, allowing them to make their own production decisions in response to market demands, thereby promoting the long-term growth and competitiveness of agriculture and Japan's integration in the world economy. Such a framework is needed to create greater incentives for farmers to produce high-quality and high-value products, rather than promoting their concentration in areas where they are not competitive. This type of approach would boost their productivity and increase incomes in a sustainable way, while helping improve environmental performance and food security. Moreover, reforms will need to focus on rice: although its share of agricultural production has fallen to 20% (Figure 5), 70% of commercial farmers produce rice, 54% of farmland is paddy and 28% of agricultural support went to rice production in 2009-11. A reform programme should include the following elements:

**Figure 5. The changing structure of Japanese agriculture**



Source: Ministry of Agriculture, Forestry and Fisheries (2012a).

- i. Production adjustment programmes should be phased out over a fixed and relatively short time period.
- ii. Assistance through market price support measures should shift away from commodity-specific support and be replaced with temporary, time-limited support payments to large-scale farmers.
- iii. Domestic reforms should be followed by phasing out import restrictions to allow consumers easy access to imported products and services, greater choice and lower costs, while encouraging Japan's participation in comprehensive bilateral and regional trade agreements that will boost its potential growth rate.
- iv. The measures above will promote the creation of larger farms and should be accompanied by reforms to remove impediments to consolidation through a comprehensive land-use plan and transparent land-use regulation.
- v. Concerns about food security should be met through a comprehensive approach aiming at a more dynamic domestic agricultural sector; an emergency stockpile reserve; secure, long-term trading arrangements; and measures to preserve the agricultural resource base, most notably paddy land.

Such agricultural reforms would be particularly beneficial to regions with a comparative advantage in agriculture, including Tohoku (Box 1).

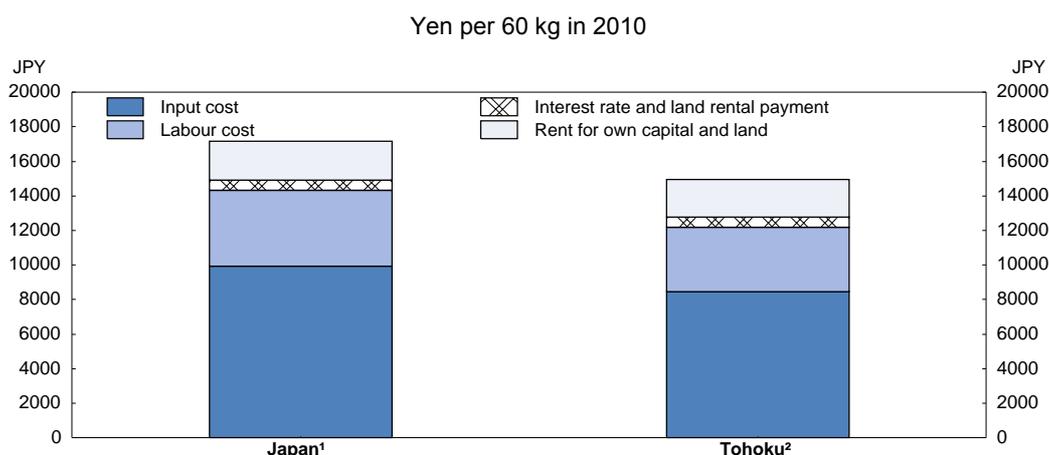
**Box 1. The comparative advantage in agriculture in the three Tohoku prefectures most affected by the disaster**

Agriculture, along with forestry and fisheries, “constitutes the key industry of Tohoku and plays a significant role for local employment”, according to the Basic Guidelines for Reconstruction (Reconstruction Headquarters, 2011). It calls for rebuilding agriculture based on a new land-use system and other reforms to make agriculture in Tohoku “serve as a model for the nation”.

Agricultural reform in the Tohoku region could thus help make it a model to revitalise Japanese agriculture, while taking account of the current status of reconstruction. The disaster damaged more than 20 000 hectares of farmland and forced nearly 7 000 farms to suspend operations. In addition, the nuclear accident initially led to production restrictions, although the Ministry of Agriculture, Forestry and Fisheries reported in November 2012 that rice produced in Tohoku did not violate safety standards. Measures to move housing located near the coast to higher ground is also forcing changes in land-use patterns. Reconstruction thus provides an opportunity to develop comprehensive land-use plans in farming communities that would transfer land use to efficient producers and deliver economies of scale.

Phasing out the production adjustment programme would allow rice farmers in Tohoku to expand production in the long run, given that a significant portion of Iwate, Miyagi and Fukushima prefectures have a comparative advantage due to favourable climatic and geographical conditions. Indeed, the average production cost in the three prefectures is 15% lower than the national average, excluding Hokkaido (Figure 6). Not coincidentally, the average farm size in Tohoku is nearly 50% larger than the nationwide average, excluding Hokkaido.

**Figure 6. The average production cost of rice is relatively low in Tohoku**



1. Excluding Hokkaido.

2. The prefectures of Iwate, Miyagi and Fukushima.

Source: Ministry of Agriculture, Forestry and Fisheries (2010b).

*Phasing out production adjustment programmes*

Production adjustment programmes should be phased out over a fixed and relatively short time period, including the subsidies paid to divert paddy land to crops other than rice. In the meantime, the government’s role in allocating the production quotas should be reduced, for example by allowing farmers to trade quotas, thereby increasing the share of rice supplied by efficient farms. Eliminating policies controlling production would leave decisions on how much and what to produce in the hands of individual producers, resulting in a number of benefits. *First*, it would reduce the high price of rice, which moreover is positive for the traditional Japanese diet, with its associated health benefits. *Second*, lower prices may

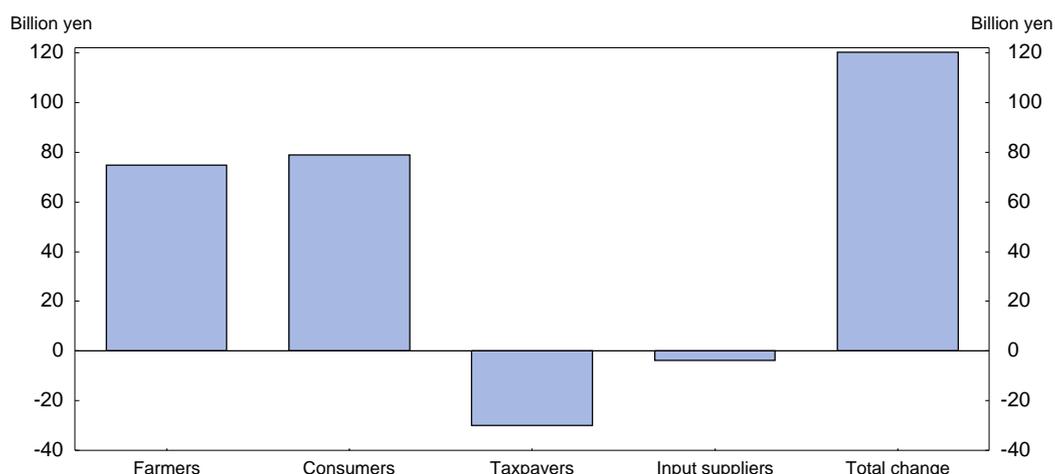
create opportunities to export to high-end overseas markets. *Third*, allowing farmers to produce more would help achieve the government's goal of increasing the food self-sufficiency rate. *Fourth*, it would lower the price of paddy land, thus reducing farmers' incentives to substitute other inputs, such as fertiliser and pesticides, which have negative environmental effects. *Fifth*, it would increase the use of paddy fields, thereby improving the multi-functional performance of agriculture.

Phasing out the production adjustment scheme for rice would cause a significant decline in its price, with a negative impact on large farmers who earn a significant share of their income from rice. The negative impact could be mitigated by announcing a clear time-frame in advance. Temporary, time-limited support payments (decoupled from production) could also be provided to large farmers. Because the impact of the price declines on small farmers would be relatively small, as farming accounted for less than 10% of household income for semi-business and side-business farms in 2010 (MAFF, 2011b), such support payments may not be warranted. Transitory payments to large farmers would achieve the goals of sustaining farm income, increasing productivity (by concentrating production in large farms), enhancing food security (by boosting rice production) and encouraging improved environmental performance (Table 6).

#### *Introducing decoupled payments targeted to Japan's policy objectives*

Existing farm income support for the production of specific commodities should be integrated into the transitory income support, which is decoupled from production and targeted to large farms. The authorities may want to consider other decoupled payments targeted to specific beneficiaries and outcomes. Such payments could be used for environmental services, for example water-buffering to prevent flooding in mountainous areas that are less favourable for production. Such targeted policies have proven to be more effective in improving the environmental performance of agriculture in other OECD countries. Moving away from existing price-based instruments and commodity-specific support would encourage farmers to reallocate land to its most profitable use. The gain to consumers from lower prices would exceed the cost of the direct payments financed by taxpayers, according to the OECD's Policy Evaluation Model (Figure 7). In sum, the burden of agricultural policy would be transferred from consumers to taxpayers, while improving economy-wide welfare (OECD, 2009).

**Figure 7. Replacing market price supports with direct payments would result in welfare gains<sup>1</sup>**

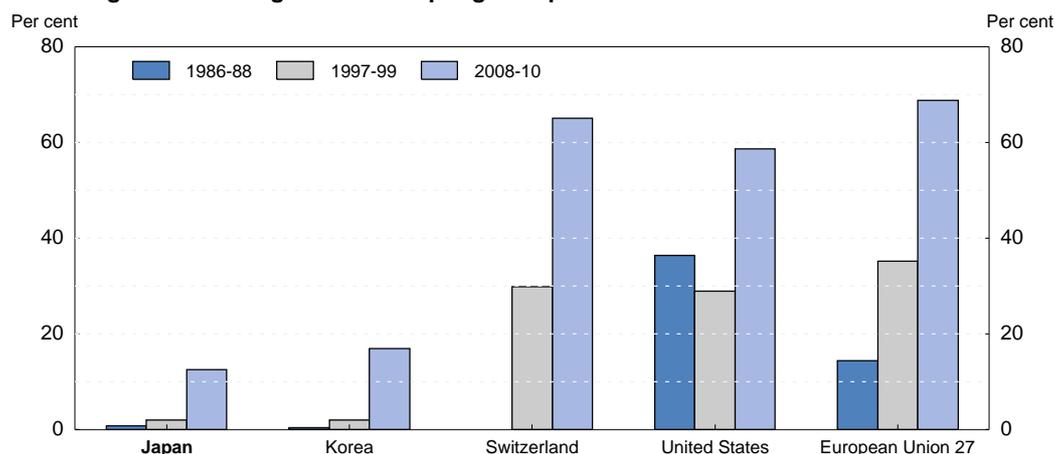


1. Assumes that 270 thousand hectares of land return to rice production by scaling back the production adjustment programme. This would boost the area used for producing rice by about 17%.

Source: OECD (2009).

The role of decoupled payments has risen markedly in most OECD countries since the mid-1980s, including in the United States, the European Union and Switzerland, demonstrating that a mountainous country with high agricultural support can convert to less distortive payments (Figure 8). In contrast, the degree of decoupling of producer support payments in Japan is very low. Boosting such payments would help Japan achieve its goals of supporting farm income and ensuring environmental benefits, while increasing productivity (Table 6). Indeed, the 2011 *Basic Policy and Action Plan* stated that shifting the burden of agricultural policy from consumers to taxpayers and reforming direct payment schemes would be seriously considered.

**Figure 8. The degree of decoupling in Japan is one of the lowest in the OECD<sup>1</sup>**



1. Calculated based on the impact on production. Zero decoupling means that the production impact of the policy set is as if all support were provided by market price supports.

Source: OECD (2012a).

### *Reducing barriers to agricultural imports*

The 2010 New Growth Strategy set an objective of doubling the cross-border flow of people, goods and money into Japan by 2020 by reducing trade barriers, lifting restrictions on foreign investment and liberalising the movement of people into Japan. However, the 2010 *Basic Policy on Comprehensive Economic Partnerships* acknowledged that Japan is falling behind other countries in establishing high-level EPAs. Agricultural support based on high border protection of key commodities, combined with domestic supply management policy, is not compatible with an open market regime necessary for comprehensive trade agreements. The 2010 *Basic Policy* called for shifting agricultural support away from import restrictions, whose cost is largely borne by consumers, towards more transparent support based on fiscal measures and reforming the direct payment scheme. However, no concrete policy plan has been announced to achieve this goal.

In July 2012, the government announced an objective of boosting the share of Japan's trade covered by EPAs from 19% to 80%. To achieve this goal, the government should step up its efforts to conclude the ongoing EPA negotiations with Australia, launch negotiations with the European Union and promote regional economic partnerships such as the China-Japan-Korea FTA and the Comprehensive Economic Partnership in East Asia. In March 2013, the new government decided to take part in the negotiations for the Trans-Pacific Partnership (TPP) Agreement, while promising to take every effort to defend the interests of Japanese agriculture. According to the government's estimate, the overall economic impact of the TPP due to tariff elimination is projected to be positive, with real GDP increasing by 3.2 trillion yen (around 0.7% of GDP) in the mid to long term, including a decrease in production of agricultural goods (Cabinet Secretariat, 2013).

Reducing trade barriers would also boost Japan's stock of inward FDI, which was only 3.8% of GDP in 2011, the lowest in the OECD area. One objective of the 2010 New Growth Strategy is to "invite foreign firms that bring high value-added products and services into Japan and double employment by foreign firms". The stock of FDI in OECD countries is positively correlated with openness to trade and there is a significant and positive correlation between a country's trade openness and the gains it reaps from a foreign presence (2006 *OECD Economic Survey of Japan*).

#### *Promoting farm consolidation through land policy reform*

Phasing out the production adjustment programme, shifting from MPS to decoupled payments targeted to large farmers and lowering border measures will reduce the incentives for small-scale producers to hold land for speculative purposes. However, achieving the 2011 goal of having a majority of farm entities with 20-30 hectares in flat-land areas requires, in addition, specific policies to improve land markets, which is crucial to establishing a more competitive and successful agricultural sector. Land markets should become more dynamic and obstacles to transactions reduced. Land-use regulation on agricultural areas should be more transparent, with a more predictable framework for the conversion of farmland to non-farmland use, thereby enabling small farmers to make well-informed decisions on whether to hold their land or transfer it to more efficient producers. Such reforms would boost productivity and achieve environmental and food security objectives by moderating the transfer of agricultural land to other sectors (Table 6). The reconstruction of the Tohoku region is an opportunity to design comprehensive and transparent land-use plans, as well as to facilitate the entry of new entrants to agriculture, using Tohoku as a pilot project.

Other policies are also needed to promote land consolidation. *First*, facilitating the entry of new farmers, in part by allowing non-agricultural corporations to own farmland, would foster farm consolidation, while bringing new capital into farming. Under current regulations, the supply of new farmers is largely limited to the children of current farmers. *Second*, the tax rate on holding idle farmland near urban areas should be increased to discourage the holding of idle land in hopes of converting it to non-agricultural use and realising capital gains. *Third*, it is important to ensure that the "farmland use facilitation groups" in each municipality are effective in promoting farm consolidation.

#### *Ensuring food security*

The risk that food supplies could temporarily fall below the physical requirements of the population makes food security a concern, although such concerns stem largely from times when global trade was less developed than today. The most important risk pertains to price rather than quantity, as occurred in the price hike of 2007-08, making the adequate supply of food in the global market a continuing concern. Japan's targets for food self-sufficiency (Figure 4) must be compatible with the priority of creating a more open, market-based agricultural sector. Therefore, multiple criteria should be established to assess the exposure to food security risk. While food self-sufficiency is thought to reduce the risk related to the disruption of trade in food, Japan would remain vulnerable to a disruption of other imports, notably energy, needed for food production. A comprehensive food security strategy should include:

- A more dynamic agricultural sector in Japan that produces a wider range of high-value foods in line with its competitive advantages for domestic and export markets.
- Adequate emergency food reserves to mitigate any temporary supply shortfalls.
- Reduced border measures to enhance reliable access to a secure, diversified and cheaper food supply from multiple sources. In addition, more open agricultural markets would allow Japan to adopt a more aggressive stance in multilateral, regional and bilateral trade negotiations, thereby benefitting the entire economy.

- Conservation of an adequate agricultural resource base, most notably paddy land, to cope with the tail risk of food shortages.

***Conclusion: agricultural reform in Japan is urgent***

The problems of Japanese agriculture – in particular low productivity and the prevalence of part-time farmers and small plots – have been evident for the past 50 years. Continued failure to implement necessary reforms threatens the future of the agricultural sector. In the absence of fundamental reform, the agricultural sector will continue to wither, trapped in a cycle of low productivity, low earnings and dependence on subsidies and import protection. While the shift of the burden of agricultural support from consumers to taxpayers would temporarily increase government spending, the time for reform is now. Policies should aim at making agriculture a growth industry by shifting to higher-valued products. The development of the vegetable industry illustrates the potential for a competitive and market-oriented agricultural sector in Japan. A more open and market-oriented sector would also facilitate Japan's participation in comprehensive regional and bilateral trade agreements that would boost its overall growth potential. A range of reforms, summarised in Box 2, are needed to increase competition and promote the development of a competitive and dynamic agricultural sector.

**Box 2. Summary of recommendations to reform agriculture and promote Japan's integration in the world economy**

***Phase out the production adjustment programmes***

- End the production adjustment programmes over a fixed and relatively short time period to allow farmers to decide how much and where to produce, thus allowing efficient farmers to increase production, while reducing production costs.
- Provide temporary support payments to large farmers to compensate for the fall in food prices resulting from the phasing out of the production adjustment programmes.

***Introduce decoupled payments targeted to explicit objectives***

- Integrate existing support for the production of specific commodities into the transitory income support for large farmers.
- Introduce new decoupled payments targeted to specific beneficiaries and outcomes, such as environmental services for water buffering in mountainous areas not suitable for large farms.

***Promote the consolidation of farmland to lower production costs***

- Ensure the transparency of land-use regulation and provide a more predictable framework for the conversion of farmland to other uses.
- Develop an efficient farmland market to remove obstacles to needed structural adjustment, in part by allowing non-farm corporations to own farmland.
- Reform the tax system to discourage the holding of idle farmland near urban areas.
- Make the “farmland use facilitation groups” in each municipality an effective force promoting farm consolidation.

***Increase Japan's integration in the world economy***

- Remove border measures on agricultural products as reforms advance, thus reducing prices and costs for consumers and accelerating Japan's participation in comprehensive multilateral, regional and bilateral trade agreements.

***Ensure food security***

- Ensure adequate food supply through a more competitive agricultural sector, access to stable supplies of imports and emergency reserves.
- Use a decoupled payment for environmental services to preserve paddy land to cope with any future risks to food security.
- Focus on food security based on a dynamic agricultural sector, a diversification of trade partners, reserves and the preservation of the agricultural resource base.

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